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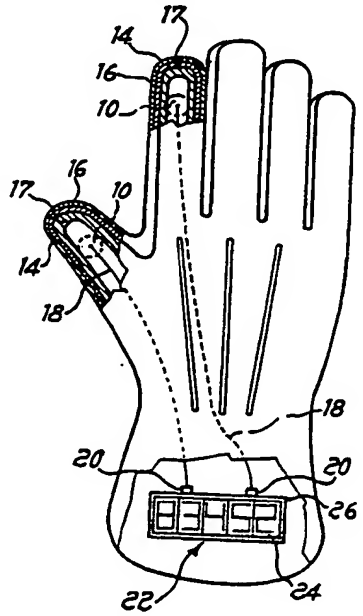
(54) Title: A SPORT GLOVE, IN PARTICULAR A SKI GLOVE, BEARING A DIGITAL CHRONOMETER ASSOCIATED THEREWITH



(57) Abstract

A sport glove, in particular a ski glove wherein, at the tip of two fingers there is fastened, on the outside, a pair of metal members (10) connected to an electronic circuit controlling operation of a chronometer (22), and in particular the starting and stopping thereof. Said functions are actuated, through said electronic circuit, by means of a mutual contact between the metal members (10).

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A SPORT GLOVE, IN PARTICULAR A SKI GLOVE, BEARING A DIGITAL CHRONOMETER ASSOCIATED THEREWITH

This invention concerns a sport glove, and more particularly a ski glove, bearing a digital type chronometer associated therewith.

Throughout this disclosure reference will be made, only for explanation simplicity purposes, to a ski glove, even though the novel concept of this invention may be extended to sport activities different from skiing.

As it should be apparent, it is highly important to be able to measure exactly the time required to run a certain predetermined distance in order to be able to evaluate the various parameters said time is dependent upon, and to act on them to shorten said time.

The above evaluations are useful both for athletic skiing itself and for the amateur skier, in that in both cases it is possible to control important factors such as the degree of training, the personal fitness conditions, as well as the most appropriate equipment selection.

At present, time measurements are taken by a second person since that would be impossible for the skier to do, both because his hands are already busy with the ski poles, and because even assuming he was able to use a chronometer, actuation thereof would certainly not be

easy with ski gloves which, as it is well known, are made of very thick material.

Therefore, it is an object of this invention to provide a ski glove having a digital type chronometer associated therewith, which can be operated in a very simple and straightforward fashion by the skier himself, through means provided with the glove according to this invention. The features as well as the advantages of the ski gloves according to this invention will become apparent from the following detailed description of a non limiting embodimental form thereof, made in reference to the attached drawing, wherein:

Figure 1 is a rear perspective view of the glove according to this invention;

Figure 2 is a partially cut away rear perspective view of the ski glove according to this invention;

Figure 3 is a view of the glove according to section III-III of Figure 1;

Figure 4 is a front view of the thumb end of the glove according to this invention; and

Figure 5 is a block diagram showing a possible embodiment of the circuitry associated with the glove according to this invention.

Referring first to Figures 1 to 4, as it is shown there-

in, at the tip of two glove fingers there is fastened on the outside, in any known fashion, a pair of metal members 10. In the embodimental form shown herein, the fingers involved are the thumb and the forefinger, although the pair of members 10 may be mounted on other fingers of choice. The solution shown herein is preferred in that, when the skier grabs the ski pole the ends of the subject fingers may get into mutual contact more easily and quickly.

As it should be apparent from Figures 2 to 4, each metal member 10 is fastened on the glove outer surface, in particular on leather 14 thereof. To the rear surface of each metal member 10 there is connected, in any way known per se, for instance by spot welding, the end of a connection lead 18 which, after having passed through an opening 12 through glove leather 14, extends in the direction of the hand entrance thereof.

As it is shown more in detail in Fig. 3, both connecting leads 18 are embedded between glove leather 14 and an electrically insulating layer 16 applied on the inside of leather 14. In such a way it is possible to avoid any possible contact of a user's hand with one or both the connecting leads 18, in case of an extended wear of the glove inner lining 17. In fact, the contact mentioned

above would connect the chronometer electric circuit to ground.

Each connecting lead 18 is provided, at the opposite end, with a connecting plug 20 integral with digital chronometer 22 being provided with an electronic circuit, not shown in Figures 1 and 2 (and which will be described in the following), with electric supply batteries (not shown), and with a display 24. Preferably, the latter is a five digit display (LED or LCD type display), wherein the first digit indicates minutes, the second and the third indicate seconds, while the fourth and the fifth indicate the one hundredths of a second. However a further digit might be added for the tenths of a second.

Chronometer 22, having a substantially rectangular shape, and being relatively thin, is inserted in a seat or recess provided in the composite glove layer 14, 16, 17, and a clear shield 26 is mounted thereon, as a further protection against entrance of snow and/or water.

Referring now in particular to Figure 5, there is described therein a possible embodiment of the chronometer electronic circuitry.

At T there is shown a switch which actuates chronometer 22, when closed. In the inventive glove, switch T is

comprised of metal members 10 whose mutual contact corresponds to the closure of switch T. In practice, when starting, the user brings metal members 10 into mutual contact, whereby an electrical pulse is generated and it is supplied at the input of a multivibrator M adapted to shape said pulse and to output a standard pulse, having well defined properties. Said pulse switches flip-flop circuit FF to logical state 1 thereby enabling AND gate P which in turn passes the clock pulses generated by respective clock CK. Said pulses are reckoned by counter CONT until that time when, at the end of a trail to be covered, the user brings metal members 10 into mutual contact again, for a short time, thereby closing switch T again. Said operation switches flip-flop circuit FF whereby gate P is inhibited, and the passage of the clock signals towards the counter is stopped. The number of minutes, seconds and fractions of a second stored by counter CONT, corresponding to the time required to complete the trail, is displayed on display 24, through decoder DEC. In order to reduce battery discharge rate, display 24 is actuated (through known methods) only when the stop pulse is forwarded to chronometer 22.

Through additional known means, such as an auxiliary

counter reaching up to "n" pulses, it is possible to use switch T for controlling the plurality of chronometer functions, i.e. the switching on, the starting, the stopping, the displaying, the counter resetting and possibly the chronometer switching off. To each of said functions there corresponds a switch T closing operation, i.e. a mutual contact between metal members 10.

In the exemplary embodiment shown in the attached Figures, and described herein above, metal members 10 are each comprised of a substantially cylinder shaped small plate having an extremely small height, but it should be understood that said members may take a different shape. For instance, said small plates outer face might have a convex surface, which would make mutual contact between members 10 easier, independent upon the angle under which said members are moved towards each other.

In addition, the shape of said metal members 10 may be different from the above, and the thickness thereof might be further reduced, down to a point where they take the shape of a foil.

It should eventually be taken into account the fact that the size of said members may be increased all the way to make them to take the shape of a metal cap fastened in any known fashion on the tip of the fingers considered

herein.

From the above disclosure, it becomes apparent what are the advantages of the inventive sport glove, and ski glove in particular, which enables the user himself to measure his own performance times by means of a chronometer without having to involve a second person.

Eventually, it should be understood that variations and/or modifications may be made to the glove according to this invention without exceeding, in so doing, the scope of protection of said invention.

For instance, chronometer 22 which, in the exemplary embodiment shown herein is located on the wrist outer side, may be positioned in the same way on the inner side thereof, or elsewhere.

CLAIMS

1. A sport glove, characterized in that on the outside of the tips of two fingers there is attached a pair of metal members (10), each of them being connected to the control circuit of a digital chronometer (22) whose start and stop are actuated by means of said control circuit, by bringing said metal members (10) into mutual contact.

2. The sport glove of Claim 1, characterized in that to the inner side of each of the metal members (10) there is connected one of the ends of a connection lead (18) which extends inside the glove and goes to connect, at the other end thereof, with said control circuit.

3. The sport glove of Claim 1, characterized in that connection leads (18) are embedded between two lining layers (14, 16) of said glove.

4. The sport glove of Claim 3, characterized in that glove lining (16) is an inner lining and it comprises an electrical insulating material.

5. The sport glove of Claim 1, characterized in that each of the metal members (10) is comprised of a small plate.

6. The sport glove of Claim 1, characterized in that each of the metal members (10) is comprised of a foil.

7. The sport glove of Claim 1, characterized in that each of said metal members (10) is comprised of a cap, fastened on a finger tip.

8. The sport glove of Claim 1, characterized in that chronometer (22) is located in a recess provided close to the glove hand entrance, display (24) thereof being protected by a clear shield (26).

Fig. 1

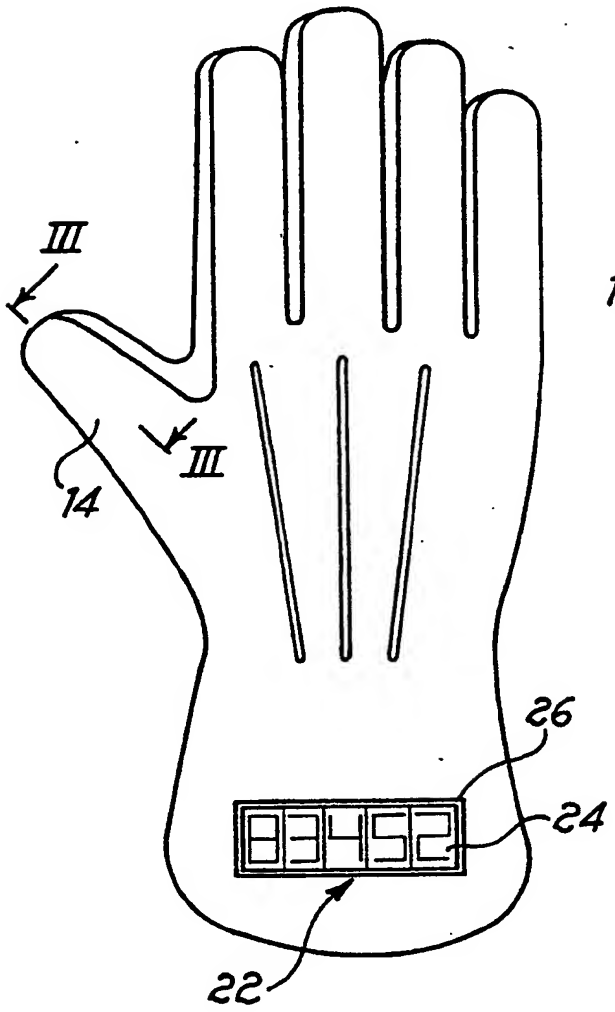


Fig. 2

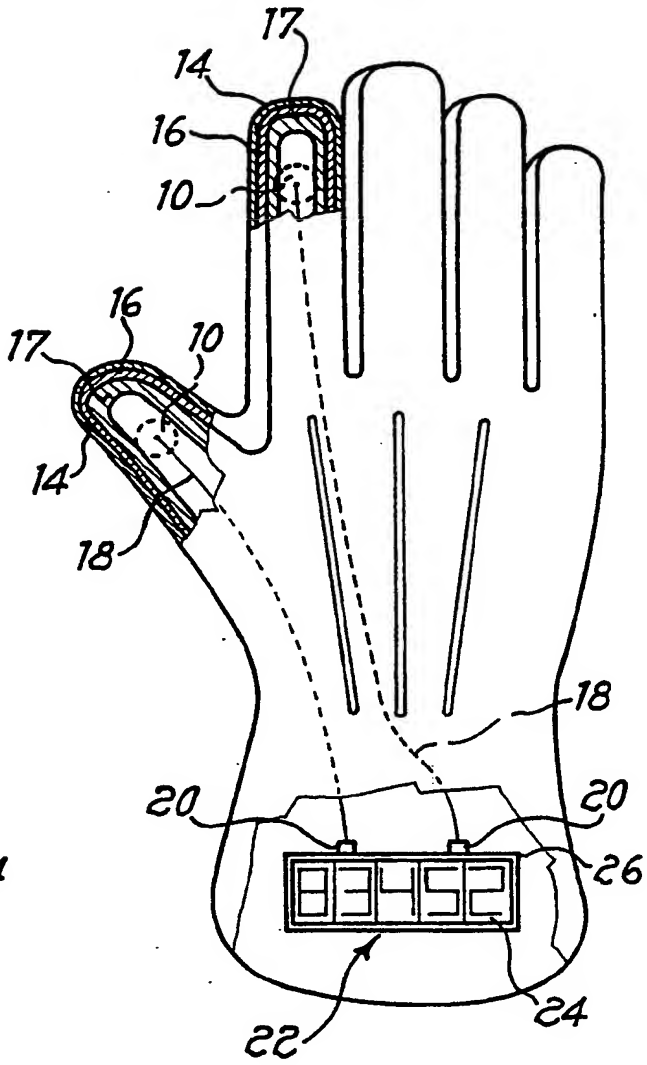


Fig. 3

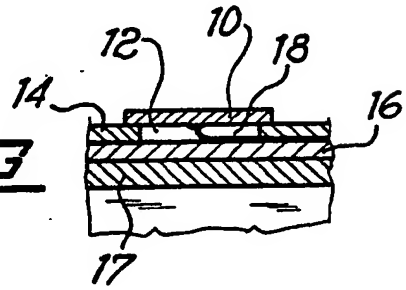


Fig. 4

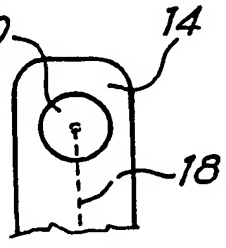
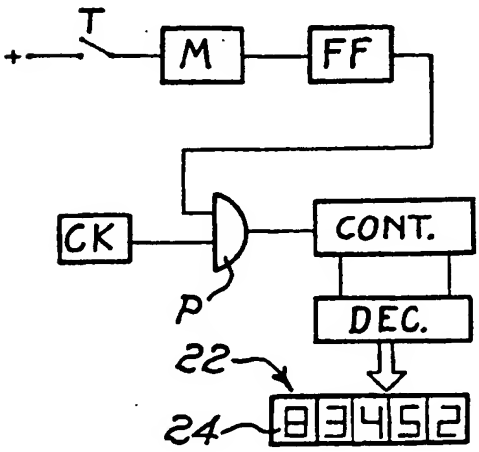


Fig. 5



INTERNATIONAL SEARCH REPORT

International Application No PCT/IT 90/00002

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)[6]

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl. 5 G04B37/14 ; A41D19/00 ; G04C3/00 ; G04F8/00

II. FIELDS SEARCHED

Minimum Documentation Searched[7]

Classification System	Classification Symbols
Int.Cl. 5	G04B ; A41D ; G04C ; G07C

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched[8]

III. DOCUMENTS CONSIDERED TO BE RELEVANT[9]

Category [9]	Citation of Document, [11] with indication, where appropriate, of the relevant passages [12]	Relevant to Claim No.[13]
X	US,A,4652141 (ARAI) 24 March 1987 see column 2, line 21 - column 3, line 15; figure 1	1-4, 6
X	DE,A,3036056 (ADACHI) 02 April 1981 see page 4, line 19 - page 5, line 4	1
A		5
A	US,A,4766611 (KIM) 30 August 1988 see figures 1, 5	1, 8

[9] Special categories of cited documents : [10]

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IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
29 MARCH 1990	17 AVR. 1990
International Searching Authority	**Signature of Authorized Officer**
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ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO. IT 9000002

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 29/03/90
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-4652141	24-03-87	EP-A- 0182249	28-05-86
DE-A-3036056	02-04-81	JP-A- 56048562	01-05-81
US-A-4766611	30-08-88	None	